January 1983

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Dayco Corp./L.E. Carpenter Company

LOCATION: 170 North Main Street, Wharton, Morris County, N. J.
STREET, MUNICIPALITY, COUNTY, NJ

Site Description (for transcription to worksheet)

Dayco Corporation/L.E. Carpenter Company operates a wall covering manufacturing facility in the borough of Wharton, Morris County, New Jersey. The facility is located in the flood plain of the Rockaway River. Prior to 1970, solid and liquid wastes were disposed in a subsurface impoundment within 200 feet of the Rockaway River. L.E. Carpenter reported to the NJDEP that it removed approximately 110,000 ft^3 of sludge (4074 yds^3) from the impoundment. However, the groundwater is contaminated with xylene and ethylbenzene along with other solvents. An engineering firm hired by the company stated that approximately 20,000 gallons of recoverable solvent is floating on the groundwater.

GROUND WATER ROUTE

1 OBSERVED RELEASE (Ref: Appendix A, Sludge Analysis & Groundwater Analysis)

Contaminants detected (5 maximum):

Sludge contained lead, butylbenzene, chloroform, toluene, xylene, ethylbenzene.

Rationale for attributing the contaminants to the facility:

No chemicals were detected in water samples collected from upgradient well #5. Downgradient wells #1,2,3, and 4 were contaminated with ethylbenzene and xylene.

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

Unconsolidated Quaternary Aquifer

(Ref: Appendix G Federal Register)

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

(Ref:)

Depth from the ground surface to the lowest point of waste disposal/ storage:

(Ref:)

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

(Ref: HRS Users Manual, Figure 5)
Mean annual lake or seasonal evaporation (list months for seasonal):

(Ref: HRS Users Manual, Figure 4)
Net precipitation (subtract the above figures):

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

(Ref: _____)
Permeability associated with soil type:

(Ref: _____)

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

* * *

(Ref: _____)

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

(Ref: _____)

Method with highest score:

(Ref: HRS Users Manual, Table 3)

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated: Benzene
Chloroform
Xylene

(Ref: Appendix A)

Compound with highest score: Chloroform Tox=3
Pers=3

(Ref: HRS Manual)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum): Approximately 4074 yds^3 of sludge was estimated to be removed from site. Also according to Appendix C, approximately 20,000 gallons of xylene can be recovered from the groundwater.

Basis of estimating and/or computing waste quantity:

Dayco reported to the NJDEP that approximately 11,000 ft^2 of sludges were removed to a depth of 8 to 12 feet. This corresponds to 4074 yds^3 - Appendix B

Approximately 20,000 gallons of recoverable solvent exists on the groundwater beneath the site. - Appendix C

* * *

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Sole source aquifer as designated by EPA

(Ref: Appendix G Federal Register)

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Wharton Public wells #'s 1,2 & 3

(Ref: Appendix D)

Distance to above well or building:

Wharton wells 1 & 2 ~ .5 miles or 2600 feet

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Wharton - 5500
Dover - 22,000

(Ref: Appendix G)

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

N/A

(Ref:)

Total population served by ground water within a 3-mile radius:

27,500=populations of Wharton & Dover

SURFACE WATER ROUTE

1 OBSERVED RELEASE (Ref: _____)

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

3.9 %

(Ref: Facility map and USGS Quad map)

Name/description of nearest downslope surface water:

Rockaway River

(Ref: USGS Quad map)

Average slope of terrain between facility and above-cited surface water body in percent:

3.9 % site is immediately adjacent to the Rockaway River

(Ref: Site map & USGS Quad map)

Is the facility located either totally or partially in surface water?

During flood conditions, the river submerges the site.

(Ref: _____)

Is the facility completely surrounded by areas of higher elevation?

Yes (No)

(Ref: USGS map)

1-Year 24-Hour Rainfall in Inches

2.7 inches

(Ref: HRS Manual)

Distance to Nearest Downslope Surface Water

75'

(Ref: Site map).

Physical State of Waste

Sludge

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Highly viscous sludge within potentially unsound impoundment with no freeboard

(Ref: Observation by Greg Cunningham - NJDEP)

Method with highest score:

Diking potentially unsound.

(Ref: Observation by Greg Cunningham - NJDEP)

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated Benzene
Chloroform
Xylene

(Ref: Appendix A - Sludge Analysis)

Compound with highest score:

Chloroform Tox=3
Pers=3

(Ref: HRS Manual).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

4074 yds^3 sludge
20,000 gallons of xylene on water table

Basis of estimating and/or computing waste quantity:

See Page 4

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance: Drinking water and recreation. Approximately 10-20% of the water pumped out of the Unconsolidated Quaternary Aquifer by Dover Township is derived, indirectly through infiltration, from the Rockaway River. The Dover well fields are downstream of Dayco/L.E. Carpenter.

(Ref: Memo from Bill Kramer, Geologist - NJDEP)

Is there tidal influence?

No

(Ref: USGS map)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

(Ref:)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

N/A

(Ref:)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

N/A

(Ref:)

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

Dover well fields draw approximately 10-20 % of their supply from the Rockaway River via infiltration due to the pumping operations.

10-20% of the water supply pumped by the Dover wells.

22,000 served by this supply

(Ref: Memo Bill Kramer - NJDEP)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

(Ref: _____ **)**

Total population served:

22,000=population of Dover

Name/description of nearest of above water bodies:

Rockaway River

(Ref: USGS Quad map **)**

Distance to above-cited intakes, measured in stream miles.

~ 1.6 miles downstream of L.E. Carpenter

(Ref: Quad map showing Dover well locations **)**

(

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected: NO AIR DATA

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

(Ref: _____)

Most incompatible pair of compounds:

(Ref: _____)

Toxicity

Most toxic compound:

(Ref: _____)

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

581,283

(Ref: _____)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

(Ref: _____)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

(Ref: _____)

Distance to critical habitat of an endangered species, if 1 mile or less:

(Ref: _____)

Land Use

Distance to commercial/industrial area, if 1 mile or less:

(Ref: _____)

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

(Ref: _____)

Distance to residential area, if 2 miles or less:

(Ref: _____)

Distance to agricultural land in production within past 5 years, if 1 mile or less:

(Ref: _____)

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

(Ref: _____)

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

(Ref: _____)

Dayco Corporation/L.E. Carpenter

Dayco Corporation/L.E. Carpenter operates a wall covering manufacturing facility in Wharton Borough, Morris County, New Jersey. The facility is located in the flood plain of the Rockaway River, a recharge area for the Unconsolidated Quaternary Aquifer, which is designated a sole source drinking water supply for the Rockaway River Basin area. Dover Township wells and Wharton Borough wells are all located within a 3-mile radius of this facility.

Prior to 1970, Dayco Corporation/L.E. Carpenter Company disposed of PVC sludge into a subsurface impoundment. In 1982 the company removed approximately 4074 cubic yds. of sludge material from the impoundment area. A private engineering firm estimated approximately 20,000 gallons of recoverable solvent floating on the groundwater beneath the site.

DRAFT

Facility Name: Dayco Corporation/L.E. Carpenter

Location: Wharton Borough, Morris County, N.J.

EPA Region: II

Person(s) in Charge of the Facility:

Name of Reviewer: _____ **Date:** _____

General Description of the Facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Dayco Corporation/L.E. Carpenter Company operates a wall covering manufacturing facility in the borough of Wharton, Morris County,New Jersey.The facility is located in the flood plain of the Rockaway River.Prior to 1970,solid and liquid wastes were disposed in a subsurface impoundment within 200 feet of the Rockaway River.L.E. Carpenter reported to the NJDEP that it removed approximately 110,000 (See below)

Scores: S_M = 61.39 (S_{gw} = 89.79 S_{sw} = 56.72 S_a = 0)

S_{FE} =

S_{DC} =

ft^3 of sludge (4074 yds^3) from the impoundment.However, the groundwater is contaminated with xylene and ethylbenzene along with other solvents.An engineering firm hired by the company stated that approximately 20,000 gallons of recoverable solvent is floating on the groundwater.

GROUND WATER ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 (35) 40	1	35	40	
Total Targets Score			44	49	
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5				57.330	
7 Divide line 6 by 57.330 and multiply by 100	S_{gw} = 89.79				

SURFACE WATER ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	6	6	
Physical State	0 1 2 3	1	3	3	
Total Route Characteristics Score			12	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	9	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	30	40	
Total Targets Score			39	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			36504	64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 56.72				

AIR ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	5.1
Date and Location:	NO AIR DATA				
Sampling Protocol:					
If line 1 is 0, the S = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100	S_a =				

	S	S^2
Groundwater Route Score (S_{gw})	89.79	8063.30
Surface Water Route Score (S_{sw})	56.72	3217.15
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		11280.45
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		106.20
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73$		S_M = 61.39

WORKSHEET FOR COMPUTING S_M

FIRE AND EXPLOSION WORK SHEET

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1 •		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 5 by 1,440 and multiply by 100			S_{FE} =		

DIRECT CONTACT WORK SHEET

	Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1	Observed Incident	0 45	1		45	8.1
	If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2	Accessibility	0 1 2 3	1		3	8.2
3	Containment	0 15	1		15	8.3
4	Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5	Targets					8.5
	Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
	Distance to a Critical Habitat	0 1 2 3	4		12	
	Total Targets Score				32	
6	If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7	Divide line 6 by 21,600 and multiply by 100 S_{DC} =					